

AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions and listings, of claims in the application:

Listing of Claims

1. (Currently Amended) A modified acetylcholine receptor subunit comprising an α subunit of a vertebrate acetylcholine receptor having a region which is homologous with the amino acid sequence shown in SEQ ID NO: 1, wherein ~~at least one amino acid in the entire~~ region of the α subunit of the vertebrate acetylcholine receptor which is homologous with the amino acid sequence shown in SEQ ID NO: 1 is replaced by ~~an amino acid which occurs at the identical position in~~ the corresponding region of an α subunit of an insect acetylcholine receptor, ~~and wherein the replacement of the at least one amino acid in the region of the α subunit results in a change of the amino acid sequence when compared with the amino acid sequence of the α subunit wherein no replacement has occurred.~~

2-4. (Canceled).

5. (Previously Presented) A modified acetylcholine receptor subunit according to Claim 1, wherein the α subunit of a vertebrate acetylcholine receptor comprises mouse, rat, chicken, zebra fish, rhesus monkey, bovine or porcine neuronal subunits.

6. (Previously Presented) A modified acetylcholine receptor subunit according to Claim 1, wherein the α subunit of an insect acetylcholine receptor is the $\alpha 2$ subunit or the $\alpha 3$ subunit of *Myzus persicae*, or the $\alpha 1$ subunit of *Heliothis virescens* or *Manduca sexta*, or the $\alpha 1$, $\alpha 2$ or $\alpha 3$ subunit of *Drosophila melanogaster*.

7. (Currently Amended) A modified acetylcholine receptor subunit ~~according to Claim 1~~, comprising the amino acid sequence shown in SEQ ID NO: 3, wherein the modified acetylcholine receptor subunit comprises an α subunit of a vertebrate acetylcholine receptor having a region which is homologous with the

amino acid sequence shown in SEQ ID NO: 1, wherein at least one amino acid in the region of the α subunit of the vertebrate acetylcholine receptor which is homologous with the amino acid sequence shown in SEQ ID NO: 1 is replaced by an amino acid which occurs at the identical position in the corresponding region of an α subunit of an insect acetylcholine receptor, and wherein the replacement of the at least one amino acid in the region of the α subunit results in a change of the amino acid sequence when compared with the amino acid sequence of the α subunit wherein no replacement has occurred.

8. (Previously Presented) A modified acetylcholine receptor comprising an acetylcholine receptor subunit according to Claim 1.

9. (Previously Presented) A modified acetylcholine receptor according to Claim 8, further comprising a mouse, rat, chicken, zebra fish, rhesus monkey, bovine or porcine β subunit.

10. (Previously Presented) A nucleic acid comprising a nucleotide sequence which codes for a modified acetylcholine receptor subunit according to Claim 1.

11. (Previously Presented) A nucleic acid according to Claim 10, wherein the nucleic acid comprises single-stranded or double-stranded DNA or RNA.

12. (Previously Presented) A nucleic acid according to Claim 11, wherein the nucleic acid comprises fragments of genomic DNA or cDNA.

13. (Currently Amended) A nucleic acid ~~according to Claim 10,~~ comprising a nucleotide sequence which codes for a modified acetylcholine receptor subunit, wherein the modified acetylcholine receptor subunit comprises an α subunit of a vertebrate acetylcholine receptor having a region which is homologous with the amino acid sequence shown in SEQ ID NO: 1, wherein at least one amino acid in the region of the α subunit of the vertebrate acetylcholine receptor which is homologous with the amino acid sequence shown in SEQ ID NO: 1 is replaced by an amino acid

which occurs at the identical position in the corresponding region of an α subunit of an insect acetylcholine receptor, and wherein the replacement of the at least one amino acid in the region of the α subunit results in a change of the amino acid sequence when compared with the amino acid sequence of the α subunit wherein no replacement has occurred, and wherein the nucleotide sequence comprises the sequence shown in SEQ ID NO: 2.

14. (Previously Presented) A DNA construct comprising a nucleic acid according to Claim 10 and a heterologous promoter.

15. (Previously Presented) A vector comprising a nucleic acid according to any of Claim 10.

16. (Previously Presented) A vector according to Claim 15, wherein the nucleic acid is functionally linked to regulatory sequences which ensure expression of the nucleic acid in prokaryotic or eukaryotic cells.

17. (Previously Presented) A host cell containing a nucleic acid according to Claim 10.

18. (Previously Presented) A host cell according to Claim 17, wherein the host cell is a prokaryotic cell.

19. (Previously Presented) A host cell according to Claim 17, wherein the host cell is a eukaryotic cell.

20. (Previously Presented) A method for preparing a modified acetylcholine receptor subunit according to Claim 1, comprising the steps of :

- a) cultivating of a host cell containing a nucleic acid comprising a nucleotide sequence which codes for an acetylcholine receptor subunit according to Claim 1, in a culture medium and under conditions which ensure expression of the nucleic acid, and
- b) isolating the polypeptide from the cell or the culture medium.

21-22. (Canceled)

23. (Previously Presented) A method for preparing a modified acetylcholine receptor subunit according to Claim 1, comprising the steps of

- a) expressing of a nucleic acid comprising a nucleotide sequence which codes for an acetylcholine receptor subunit according to Claim 1 in an in vitro system, and
- c) isolating the polypeptide from the in vitro system.

24. (Previously Presented) A modified acetylcholine receptor comprising an acetylcholine receptor subunit of Claim 7.

25. (Previously Presented) A modified acetylcholine receptor subunit according to Claim 1, wherein the modified acetylcholine receptor subunit displays greater sensitivity to imidacloprid as compared to an unmodified acetylcholine receptor subunit.

26. (Previously Presented) A DNA construct comprising SEQ ID NO: 2 and a heterologous promoter.

27. (Previously Presented) A vector comprising a DNA construct according to Claim 26.

28. (Previously Presented) A vector according to Claim 27, wherein the nucleic acid is functionally linked to regulatory sequences which ensure expression of the nucleic acid in prokaryotic or eukaryotic cells.

29. (Previously Presented) A host cell containing a DNA construct according to Claim 26.

30. (Previously Presented) An isolated acetylcholine receptor comprising β subunit and an α subunit, wherein the α subunit comprises SEQ ID NO: 3.

31. (Previously Presented) An isolated acetylcholine receptor comprising an α subunit and a β subunit, wherein the α subunit comprises a region having the same amino acid sequence as a region of an α subunit selected from the group consisting of:

the $\alpha 2$ subunit isolated from *Myzus persicae*,

the $\alpha 3$ subunit isolated from *Myzus persicae*,

$\alpha 1$ subunit isolated from *Heliothis virescens*,

the $\alpha 1$ subunit isolated from *Manduca sexta*, and

he $\alpha 1$, $\alpha 2$ or $\alpha 3$ subunits isolated from *Drosophila melanogaster*.

32. (Previously Presented) An isolated acetylcholine receptor according to Claim 31, wherein the β subunit is has the same amino acid sequence as a β subunit selected from the group consisting of:

the $\beta 2$ subunit isolated from mouse,

the $\beta 2$ subunit isolated from rat,

the $\beta 2$ subunit isolated from chicken,

the $\beta 2$ subunit isolated from dog,

the $\beta 2$ subunit isolated from zebra fish,

the $\beta 2$ subunit isolated from rhesus monkey,

the $\beta 2$ subunit isolated from bovine, and

the $\beta 2$ subunit isolated from porcine.